

Stanbridgeford STW

Client:	Anglian Water
Location:	Stanbridgeford, Bedfordshire
Value:	£1.9m
Duration:	6 Months

In Brief...

In order to solve a potential ammonia issue at Stanbridgeford Sewage Treatment Works (STW), Barhale's team with Anglian Water's IOS programme have installed a new biological tertiary treatment plant to remove additional ammonia. The new plant consisted of:

- 12 no. SAF units which were constructed off site
- 2 no. 7.5kw feed pumps and 2 no. 11 kw blowers
- A new MCC kiosk and PLC which were constructed off site
- Utilising the existing feed well and drying bed slab



The SAF units as seen from the rear. In the middle, the flow splitter chamber can be seen



The SAF units were lifted in to position on top of a reinforced concrete slab with a 100t crane

Technical Features...

In their component parts, the elements are fairly standard pieces of equipment which can be found on sewerage works around the country. The way in which the Barhale team have brought the pieces of the plant together however, and some of the specific nuances of the design, has made the solution particularly innovative.

Key to the success of this project was the interaction of the new plant with existing structures, pipelines, and the process stream on site. In essence, the team have plumbed new kit into existing kit. In doing so, they had to plan each and every element carefully and thoroughly, liaising with Anglian Water throughout. Plan for Stage meetings were held, during which time an in depth, step by step activity list was created which helped ensure our team flagged or removed unknown elements early on in the process, in order to mitigate delays.

Due to the modular design, and off site build, the team were able to bring the elements together very quickly, thus reducing time on site. Time on site was also greatly reduced due to the 'plug and play' nature of the SAF units and other components. Factory acceptance tests were carried out prior to delivery, meaning that the units were able to be positioned, installed and ready to receive flows within three days of arriving on site. In comparison, a traditional tank build and M&E fit out would have taken several months. This reduction in installation time was essential in enabling our team to start the commissioning and seeding process of the tanks, as soon as possible, in order to meet their challenging obligation deadline.

Part of the build involved the installation of a new MCC panel which would control and monitor process flow and control various parts of the works and blowers accordingly. The delivery team identified an opportunity to locate the new panel inside an existing site building. This saved on the cost and build time of a new kiosk base and kiosk. So, by integrating new items of kit with existing structures, the team produced a significant carbon saving along with a cost saving of £20k.

The final critical factor was that the site had a set level of supplied power. Not only would this have been costly to upgrade, but there was also insufficient time in the programme to facilitate a new supply being brought into site. As part of our delivery team's quality assurance they visited the manufacture of the SAF tanks during the build process. It was discovered that there was a media which could be placed inside the tank, which would still receive the biological results, but due to its shape needed less aeration. This resulted in a reduction of the size and amount of blowers required on site which are generally very inefficient with regards power consumption. As a result, the team have saved on the initial cost of the upgrade and will save the client on long-term operating costs.

Customer Benefits/Feedback...

Our team are on course to deliver at a total cost saving of circa £894,460 (over 30%) on the client's original project affordability target. The team are currently carrying out final sampling and commissioning works on the new plant, with a projected completion date of late January/early February which will in-keep with the client's programme dates.